

# **CAVE CREEK WASH NEAR CACTUS ROAD**

## **FCD GAGE ID# 4833**

### **STATION DESCRIPTION**

**LOCATION** – The gage is located on at the Cave Creek Wash sediment basin just north of Cactus Road and 25th Avenue in Phoenix. The gage instrumentation is located on the right bank of the edge of the sediment basin outflow weir. Latitude N 33° 35' 56", Longitude W 112° 07' 01". Located in the SE1/4 SW1/4 S13 T3N R2E in the Sunnyslope 7.5-minute quadrangle.

**ESTABLISHMENT** – The gage was installed on June 27, 1991.

**DRAINAGE AREA** – 33.6 mi<sup>2</sup>, below Cave Buttes Dam

**GAGE** – The gage is a pressure transducer type instrument. The PT diaphragm is at 0.80 feet gage height, levels of April 30, 2008. Gage height is relative to 0.00 feet gage height being the invert of the outlet culvert.

There are two staff gages at this location. A painted staff gage is readable from the east bank of the channel, and a metal staff plate is readable from the west bank of the channel. Both staff gages read in gage height.

There are no crest stage gages at this location.

**ZERO GAGE HEIGHT** - Zero gage height is defined as the invert of the outlet culvert in the outlet works.

**HISTORY** – Gage installed on June 27, 1991. The PT instrumentation was originally installed in the outlet works gage house. However, it was found that the outlet works clogged frequently and did not give accurate stage readings. The transducer was moved on April 14, 1994 to its present location. PT reworked and moved to elevation 0.80 feet gage height.

### **REFERENCE MARKS** –

RP1 – Culvert inlet defined as 0.00 feet gage height.

RP2 – is the weir of the outlet of the sediment basin. Elevation 9.95 feet gage height.

**CHANNEL AND CONTROL** – Cave Creek Wash channel transitions at this location from a channelized 'natural' channel to concrete lined. The gage is located on the outlet of a sedimentation basin. The actual channel joins the sediment basin approximately 800

feet upstream. The channel downstream of the basin is a concrete lined trapezoidal shape. Control for the outlet is the 48-inch culverts for gage heights below 9.95 feet. Above 9.95 feet the weir becomes the control.

**RATING** – The current rating is Rating #1, developed by R. W. Cruff using HY8 culvert analysis program for flows in the culvert, and the weir equation for flows over the weir, gage height 9.95 feet.

**DISCHARGE MEASUREMENTS** – Low flow discharge measurements could be made directly by wading. However, caution should be exercised because the channel is slippery when wet, and the velocities of the water could be high. High flow discharge measurements could be made from the downstream side of the Cactus Road bridge.

**POINT OF ZERO FLOW** – The PZF is the invert of the outlet culvert at 0.00 feet gage height.

**FLOODS** – The peak of record is 3,247 cfs and 12.85 feet gage height occurred on August 3, 2005. A peak of 1,600 cfs and 11.73 feet gage height occurred on September 2, 2006. A peak discharge of 1,248 cfs at 11.36 feet gage height occurred on July 14, 2002. A discharge of 1,154 cfs at 11.28 feet gage height occurred on July 14, 1999. A discharge of 816 cfs at 10.95 feet gage height occurred on September 28, 1995.

**REGULATION** – Cave Buttes Dam’s ungated principal outlet upstream limits flow to a maximum of about 600 cfs. Spillway flows occur under extreme circumstances. Additionally, the East Fork of Cave Creek had 5 detention basins which are supposed to capture flows above the 2-year discharge and limit outflows to the 2-year storm drains. Finally, the City of Phoenix has a few detention basins along the base of the Phoenix Mountains.

**DIVERSIONS** – None known

**ACCURACY** – Discharge readings are considered fair to good for weir flows above 9.95 feet gage height. Flows below the weir are poor to fair due to clogging on the outlet structure.

**JUSTIFICATION** – Monitor flows into the Arizona Canal Diversion Channel from Cave Creek Wash and Cave Buttes Dam for flood warning in the Paseo Park recreation area in Glendale.

**UPDATE** - July 13, 2011  
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